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PROCEEDINGS

OF THE

AMERICAN ACADEMY

OF

ARTS AND SCIENCES.

SELECTED FROM THE RECORDS.

VOL. VI.

Five hundred and ninth meeting.

May 27, 1862. — ANNUAL MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters relative to the exchanges of the Academy.

As Secretary of the Council, he also read its Annual Report upon the changes which have occurred in the Academy during the past year, as follows: —

Five Resident Fellows, one Associate, and three Foreign Honorary Members have deceased since the last anniversary meeting.

The names now removed from our list of immediate members are those of NATHAN APPLETON, SAMUEL A. ELIOT, RICHARD SULLIVAN, CORNELIUS CONWAY FELTON, and LUTHER V. BELL.

The Hon. NATHAN APPLETON, LL. D. died at his residence, in this city, on the 14th day of July last, at nearly 82 years of age, — having been born on the 6th day of October, 1779.

He was a native of New Ipswich, in the State of New Hampshire, whither his family had removed from Old Ipswich, in the State of Massachusetts. He enjoyed the advantages of a good school education, was fitted for College, and was regularly admitted to the Freshman Class at Dartmouth, in August, 1794. But it having been decided that he should be a merchant rather than a scholar, he abandoned the collegiate course at the very outset of the term, and came at once to Boston, to enter upon commercial pursuits in connection with his elder brother, the late excellent Mr. Samuel Appleton. By his perseverance, his industry, his integrity, and his force of character, he rose to the very first rank among the merchants of Boston, and identified himself with not a few of the most important enterprises of the last half-century. He was associated with the late Mr. Francis C. Lowell in the introduction of the power loom into our country, and in the establishment of the cotton manufacture in New England; and he was one of the founders of the great manufacturing city which bears the name of his associate and friend.

But his practical pursuits by no means absorbed his attention. He found time to observe, to think, to read, and to study; and he acquired the power of communicating the results of his reading and reflection in a style of remarkable condensation and clearness.

He was not without a taste for natural science, and was early accustomed to travel with a compass in his pocket, with a view to making observations as he went along. In a communication which he prepared in April, 1826, and which was published in Silliman's Journal in the following October, under the title of "Proofs that General and Powerful Currents have swept and worn the Surface of the Earth," he was among the first to call attention to those grooves and scratches on the surface of the rocks which have since given occasion to so much scientific discussion.

His studies, however, were mainly directed to subjects connected with his business pursuits. He studied the laws of currency and credit, of trade and revenue, of labor and wages; and his writings on all these topics were among the most valuable of the period in which he lived. They were generally brief articles, thrown into the columns of a newspaper from day to day, to meet the exigencies of an immediate question. But sometimes they assumed the form of elaborate essays. His "Remarks on Currency and Banking," published originally in 1841, and which reached a third edition in 1857, may be mentioned particularly, as an important contribution to the right understanding of this much-vexed subject, and one which has by no means lost its interest or its value with the occasion which called it forth.

Mr. Appleton was frequently employed in public life, and rendered distinguished service to the Commonwealth and to the whole country, both as a member of our State Legislature, and as a member of Congress. His speeches, in the House of Representatives of the

United States, on the Tariff and the Protective System, were marked with great ingenuity and ability. He was an antagonist whom no one cared to encounter a second time. But his tastes were not for the strifes and contentions of political service, and he always returned with eagerness to the quieter walks and duties of life. He was universally respected in the community in which he lived, and will long be remembered among our most sagacious and successful merchants, and among our most enterprising, upright, and public-spirited citizens.

The HON. SAMUEL ATKINS ELIOT died at Cambridge, on the 30th day of January, 1862, in the 63d year of his age.

He was the third son of Samuel Eliot, Esq., an eminent and wealthy merchant of Boston, whose name is so honorably connected with the Professorship of the Greek Language and Literature at Harvard University.

Mr. Eliot, our late associate, was born in Boston on the 5th of March, 1798, and was graduated at Harvard in 1817. After finishing his collegiate course, he entered on the study of divinity, but soon abandoned the idea of becoming a clergyman. He did not attach himself, however, to any other profession, but devoted himself for many years to literary studies and pursuits. He was deeply interested in the public charities of Boston, and contributed several elaborate articles in relation to them to the pages of the North American Review. He was an ardent lover of music, and was hardly second to any one of his time in his efforts to promote the systematic culture of this delightful science in the community in which he lived.

He was an active and earnest friend to the University at Cambridge; serving it faithfully for more than ten years as its Treasurer; adding to its Library a noble collection of works on American History, at a cost of not less than five thousand dollars; and preparing and publishing (in 1848) a compendious and excellent sketch of its rise and progress.

His services were often put in requisition by his fellow-citizens in important public stations. He was associated, for a period of five successive years, with the municipal government of his native city, — for two years as one of its Aldermen, and for three years as its Mayor. In 1850 he was elected to Congress as the Representative of the Boston District, and took his seat at a moment when the ordinary responsibilities of the longest service were crowded within the little period of an expiring term. In all these positions he exhibited a fidelity and a firmness which secured him the esteem and confidence both of those whom he represented and of those with whom he acted.

He was a gentleman of varied accomplishments, of liberal culture, of generous impulses, and of the highest moral principle. He was eminently a practical and useful man, always ready to render a service to his friends, or to the public, wherever he could find or make an opportunity. Entering upon commercial pursuits during the latter years of his life, he met the reverses which unexpectedly befell him with Christian courage and resignation; and proved himself entitled to the respect which he ever enjoyed, in adverse as well as in prosperous fortune.

Many more years of usefulness and honor might have been hoped for him by his friends, might have been anticipated by himself: but he lived long enough to secure an enviable remembrance among his fellow-men, and to lay up treasures beyond the reach of reverse or accident.

The name which comes next in order upon our annual obituary record is that of an aged associate, who, although for more than fifty years a Fellow of the Academy, so long ago retired from our meetings that his venerable form was to some of its younger members probably unknown.

The HON. RICHARD SULLIVAN was born at Saco, Maine, June 17th, 1779; was graduated at Harvard College in 1798; was admitted to the Suffolk bar in 1801; and died, December 12th, 1861. Although his life was marked by no brilliant epochs, and although he has left no monuments of fame, yet if purity and integrity, a generous culture and refined tastes, urbanity of manners and dignity of mind, gentleness in prosperity and fortitude in adversity, uniform benevolence and a consistent faith, constitute a just title to respect, his character is worthy of honorable notice, and his name is an ornament to the roll of the Academy. His services on behalf of the institutions and interests of education, literature, philanthropy, and religion were as efficient as they were unostentatious. To him, as much as to any individual, this Commonwealth is indebted for that advancement of agricultural knowledge and taste which has contributed so much to the productiveness of its soil, the embellishment of its scenery, and the comfort and enjoyment of its people. The Massachusetts General Hospital, of which he was one of the founders, — the College, his Alma-Mater, of which he was for many years an Overseer, — the Divinity School at Cambridge, which he assisted in establishing, — besides other public associations, were largely indebted to his prudent counsels and well-directed exertions. He was a member, for several years, of the Legislature of Massachusetts and of the Executive Council. The few specimens which are remembered of his qualities as a writer and public speaker are such as to leave no doubt that, had he more extensively cultivated and exercised his gifts, he might have secured an enviable reputation for eloquence. He always enjoyed retirement, and as his strength began to fail he not reluctantly withdrew from the world, and, gracefully gathering his unspotted robe about him, calmly awaited his change.

DR. LUTHER V. BELL was born in Francestown, New Hampshire, Dec. 20, 1806. He was the second son of the Hon. Samuel Bell, who held successively the offices of Chief Justice, Governor, and U. S. Senator of his native State. At the age of sixteen Dr. Bell was graduated at Bowdoin College, and received the degree of Doctor in Medicine at Dartmouth College at the age of twenty, and later in life the honorary degree of Doctor of Laws from King's College, in Nova Scotia. He commenced the practice of medicine in his native town, where he soon acquired a distinguished reputation as a successful physician and skilful surgeon, and especially for his tact in meeting with limited means the emergencies in which country practitioners are so often called upon to act. In 1834 he received the Boylston prize for a dissertation "On the Diet best fitted for the Inhabitants of New England," and in the following year he offered for the same prize a second dissertation "On the External Exploration of Disease," a subject which was then just beginning to attract the attention of medical men in this country. The prize was justly awarded to Dr. O. W. Holmes; but the dissertations of Dr. Bell and of Dr. Haxall of Virginia were considered of unusual merit, and, through the liberality of the late Dr. Shattuck, they were printed in the publications of the Massachusetts Medical Society. Through these dissertations and his professional reputation his name became favorably known throughout New England.

The establishment of an Asylum for the Insane in New Hampshire having been proposed, Dr. Bell became one of its most earnest advocates. The inquiries of several benevolent persons revealed the existence of insanity to an extent wholly unsuspected: still the Legislature and the politicians shrank from incurring the expenditure necessary to an adequate provision for so much suffering. To advance this object in question, Dr. Bell was elected a member of the Legislature; and no one contributed more largely than he, by his influence among the members and by his writings in the public journals, to insure the success of the enterprise.

While engaged in this important public service, and probably in no small degree in consequence of it, he was invited to take charge of the McLean Asylum. This appointment was highly honorable to him, as it was wholly unexpected and unsolicited on his part. He entered upon the duties of his new office early in the year 1837, and continued to perform them with unsurpassed zeal and fidelity for a period of nearly twenty years. There is but little in the routine life at such an institution which can properly be brought before the public, and yet there are but few positions where the responsibility to the public is more serious, or of a more delicate nature. The complicated details of the management of the internal affairs of an asylum for the insane, the demands, sometimes conflicting and often unreasonable, of those interested in its inmates, call for very varied and efficient executive abilities, and these he possessed in an eminent degree. Endowed with a mind naturally shrewd and observing, with wide interests and attainments in science and literature, an extensive knowledge of men and things, quiet and unostentatious, but at the same time frank, genial, and attractive, he commanded the respect and confidence of all who came in contact with him. That his administration of the affairs of the McLean Asylum were wholly successful is proved by the fact that, while under his charge, its means for usefulness were greatly increased, it attained to higher confidence in the community, and steadily advanced in reputation as the best-organized charity of its kind in the country. His published reports give abundant evidence of the success of his treatment, of the justice and truthfulness of his character, and of his intolerance of anything like exaggeration in presenting the results of his labors to the public.

While his life at the Asylum was necessarily one of comparative seclusion, he was ever ready and willing to aid in the establishment and further the objects of other institutions for the treatment of the insane. In 1845 he was commissioned by the trustees of the Butler Hospital for the Insane, in Rhode Island, to visit Europe to collect information, and to report upon the best plans for the construction, warming, ventilation, and internal economy of the newer and betterorganized Asylums. Visiting Europe for the first time, he gave his whole time to the one object of his mission, spending the day in visiting the institutions and the evenings in the preparation of his plans, giving little or no attention to other objects of interest which had so many attractions for his inquisitive and enlightened mind. The results of his labors have been presented to the public in various forms, partly in a Report to the Trustees of the Butler Hospital, partly in a discourse delivered before the members of the Massachusetts Medical Society at their annual meeting, and in a printed volume entitled "The Practical Method of Ventilating Buildings."

Dr. Bell occupied an eminent position in relation to the jurisprudence of insanity; and in our courts of justice his opinions were often called for, and were received with entire confidence and respect. The best criterion of the justness of his professional reputation is to be found in the estimation in which he was held by the members of the medical profession, who trusted in his wisdom and honored him with their highest gifts.

His last days were given to the country. In the early stage of the rebellion he offered his services, and was appointed surgeon of the 11th Massachusetts Regiment of Volunteers. At the battle of Bull Run he distinguished himself, not only by his humane devotion to the sick and wounded, foes as well as friends, but by the timely aid he secured for many of the soldiers who were wandering about after the disastrous retreat, without direction, and suffering great privations. He was subsequently made Brigade-Surgeon, and served in General Hooker's division on the Lower Potomac, where, in the active discharge of his duties, he was attacked with inflammation of the pericardium, and died in camp on the 11th of February, 1862. His life was a beneficent one; and thousands in the community whose minds have been restored from disease to health will hold him in grateful remembrance; and yet others in coming years will reap the fruits of his religious devotion to the interests of benevolence and humanity.

CORNELIUS CONWAY FELTON, LL. D. was born in West Newbury, Massachusetts, November 6, 1807. His boyhood was passed amid the privations incident to the embargo and the war with England, so ruinous to the maritime parts of the North. He was formed by nature for a scholar, and even in extreme childhood showed aptness for learning. But the means of his parents were very limited, and he was early obliged to depend wholly on himself. The boy was an epitome of the man. He was industrious, exceedingly rapid in acquirement, always the resort of his schoolmates for aid in difficult tasks, always giving assistance with cheerfulness and alacrity, never jealous, constantly improving himself and amassing knowledge of all kinds. Moreover, his delicacy of thought and conduct in early years was as remarkable as his other traits; and these peculiarities distinguished him through his whole life.

Beside the common-school training in the districts where his father at different times resided, the entire period during which our associate obtained the advantage of schooling in the classics was just one year and nine months; and yet, when, prompted by his teacher, he sought to become a student of Harvard College, and offered himself for admission, his acquisitions, especially in the Greek and Latin classics, were far beyond the requirements of that institution, and, under the circumstances, quite astonishing. He entered College in 1823, and received the degree of A. B. in 1827, among the first scholars of his class. He was eminent in every branch of the collegiate studies: if superior to all others in any one respect, it was in the Greek language and in general philology. His mind seemed to seize a language with no painful effort in the mastery of its vocabulary or its structure, and his memory retained it with an iron grasp.

For two years after leaving College Mr. Felton was employed in teaching school in Geneseo, New York. In 1829 he was appointed Latin Tutor in Harvard College, and was transferred to the Greek Tutorship in 1830. From his first appointment at Cambridge till his death, his whole life was identified with that institution. Nearly a generation of men have witnessed his untiring devotion as a teacher. In 1832 he was made College Professor of Greek; and in 1834 he succeeded Dr. Popkin as Eliot Professor of Greek Literature, which chair he filled with signal ability until the year 1860. He mastered the whole classic literature of Greece, and became imbued with the life and genius of her people in all the epochs of her eventful history. He was familiar with the works of all the erudite Germans who have wrought in the same rich mine, and his knowledge extended to other realms of science. He also became a deep student of the English language and literature, as well as of those of most European nations.

Art also found in him a votary. He was evidently first won by its illustration of his favorite authors. But soon his mind recognized the creative genius of the artist as akin to that of the poet, and he woke to a perception of the more abstruse meaning of Art; then he became entirely fascinated with Grecian sculpture and architecture, and we find him discoursing on the union between Greek Art, Song, and Philosophy.

He took an active part in the government of the College under four administrations, and was for several years, as Regent, the chief executive assistant of the President. But his interest was not entirely absorbed by his academic duties. He had time to give, and zealous services also, to the cause of education and science elsewhere. He was an active member of the Massachusetts Board of Education, and one of the Regents of the Smithsonian Institution. In these offices of honorable confidence his influence was widely felt.

He was a ready and an eloquent writer, always prepared to uphold the cause of truth. In the latter years of his life he established a reputation also for his interesting popular addresses on many passing occasions which could have allowed but little preparation. But his tongue and pen were never more eloquent than when employed in the interests of Greek learning, and in describing the reawaking of Hellas. He twice visited Athens. Becoming deeply impressed by the institutions of that city and the learning of its scholars, he was full of hope for the future of Greece, and through her of Eastern Europe. He enjoyed the opportunity thus allowed of knowing her men of letters and her statesmen; and, bearing with him their lasting friendship, he returned with the desire of proving to others his own convictions of the importance of modern Greek civilization and literature.

Mr. Felton's published writings have been already enumerated in print. They consist chiefly of editions of the Greek Classics, of Homer, the Agamemnon of Æschylus, the Panegyricus of Isocrates, the Clouds and the Birds of Aristophanes, and compilations for the use of advanced classical students. He also published an edition of Smith's History of Greece, adding a continuation from the Roman Conquest down to the year 1844. His contributions to Reviews on a variety of subjects are numerous and able. Besides the lectures pertaining to his professorship, he also delivered four courses upon Greek Literature before the Lowell Institute in Boston, and others at the Smithsonian Institution at Washington. Nor does this enumeration fully represent the sum of his literary labors. The trait of his childhood remained a peculiarity of his mature life. Every one who needed literary aid applied to him, and was sure to receive a willing response. The amount of these generous contributions to the works of other writers can never be specified.

In his educational works, as well as in the class-room, President Felton always aimed to develop before his pupils the prevailing thought of the author, and to lead them to appreciate its beauty or its grandeur. If they were reading an oration of Demosthenes, he rather helped them to perceive the compact perfection of the whole design, than lingered upon the phrases. All appliances of historical, archæological and critical knowledge were sought to help this great object. And yet the notes to his editions contain enough of minute philological remark, showing an appreciation of those points of discussion which the profoundest grammarians have dwelt on. His mirthful nature, also, — another attractive feature of his mind, — caught every merry allusion and sparkled in its light, adding a grace to the wit it reflected.

As he performed the prime duty of a teacher, that of securing his own growth while cultivating others, his teaching became continually more successful; and although his kindly nature led him to be lenient to the short-comings of his pupils, and to overlook their devices, yet the scholarly men of every class felt, as they passed under his care, that they were in contact with a master mind. Particularly has this development been apparent since his European tours in 1853 - 4 and in 1858. With the Odyssey before him, he then traced the Greek headlands and the islands of the Ægean, and learned to interpret the author by this commentary. Iliad in hand, he wandered over the Troad, and believed in Homer. At Athens he demonstrated to sceptics the identity of the Pnyx; and, standing on its Bema, looked towards the Acropolis and recalled the thunder-words of the great orator. Wandering to the remains of the Dionysiac Theatre, he was in imagination present at the representation of the Prometheus. He climbed the steps of the Propylæa, and, standing amid the ruined glories of the Parthenon, looked down on the waters of the Saronic, and away to the blue heights of the Peloponnesus, and read the whole Grecian history in the scene. He felt too the consecration of these monuments in the holier reminiscences of Mars Hill. The vivid pictures thus obtained, with the wider range of thought received from intercourse with the highly cultivated minds he encountered wherever he travelled, so wrought upon his plastic nature, that he seemed almost a new man, — so fed and rekindled was his enthusiasm for his favorite studies, — so felt was his assured position among the world's scholars, and so extended were his sympathies with everything embraced in human science.

Thus developed, and thus prepared by academic life for the office, he succeeded to the presidency of the University in 1860. He entered on his new duties with the most conscientious determination to perform its functions with a sole regard to the best interests of learning and the true glory of religion. His aim was to bring about some wholesome reforms, and to foster a manly public sentiment among the students in favor of mental culture; to withdraw the young men from the pursuit of pleasure; to bring them more into sympathy with their teachers; to make the college less a resort of those who wish to amuse themselves, and more a place for vigorous training. In this endeavor he had achieved some measure of success; and, sustained by public opinion, had his life been spared, he would doubtless have seen his wishes fully realized.

Disease had already insidiously approached him before he entered on this new office, the duties of which, so unremitting and engrossing, with such painful outlay of sympathy, evidently aggravated an organic derangement of the heart. He was advised to drop his cares and give himself rest during the vacation of the College, and he went to visit his brother near Philadelphia. There, early in February last, he was seized with more aggravated symptoms, and lingered till the 26th of that month, when, surrounded by his brothers, sisters, and wife, exhibiting all the amenities of his nature, he closed his eyes on this world, to explore the glories of the next, — leaving a void here, and wherever his talents and character could be appreciated, never to be filled. His age was 54 years 3 months and 20 days.

Greece speaks by her living representative from the ranks of the Academy in the following epitaphion, in the language that our brother loved so well: —

Ἐνθάδε ἡ γῆ κατακαλύπτει
Κορνήλιον Κόνϝειον Φέλτωνα
τοῦ ἐν Κανταβριγίᾳ Ἁρβαρδίου Συστήματος
Πρόεδρον.
Ἐβίω ἔτη Ν Δ, μῆνας Γ, ἡμέρας Κ.
Μετήλλαξε μηνὸς φεβρουαρίου Κϛ, ἔτους ͵ΑΩΞΒ.

Οἴχεαι εἰς Ἀΐδαο, φίλων πολὺ φίλτατε Φέλτων,
Σοῖς δ' ἑτάροις λείπεις ἄλγεα καὶ στοναχάς.
Ἠ μὲν κλαίουσιν σοφίης ἀγαθοὶ θεράποντες,
Ἑλλὰς δ', ἣν ἐφίλεις, σὴν ἀρετὴν ποθέει.

DON ANGEL CALDERON DE LA BARCA, the only member upon the associate list whom we have lost, so far as is now known, during the past year, died, at his residence, near San Sebastian, only a day or two after our last anniversary, viz. on the 31st of May, 1861, seventy years old.

This eminent Spanish statesman, who was elected into the Academy while resident in this country, was also born upon our side of the Atlantic, in what was then the viceroyalty of Rio de la Plata. But he was early sent to Spain, and trained for the diplomatic service of his country in the Bureau for Foreign Affairs at Madrid. At different times he had different secretaryships in some of the principal countries of Europe; and, like others in similar relations to his government, suffered occasionally — once at least severely — from the factions that disturbed his country's peace. Later, he was twice Minister to the United States; his first term of service falling wholly or chiefly in the time of Mr. Van Buren, and his second in that of Mr. Tyler. During the latter, he managed with honorable ability a question which for a short time disturbed the friendly relations of Spain and the United States.

In the interval between these two missions, he was sent with large powers to Mexico, as the first authorized ambassador from Spain to her revolted colony; and by his wisdom, his moderation, and a kindliness of temper which everywhere smoothed the roughest paths before him, he established between the two governments relations of amity which many statesmen had thought impossible, and which in fact did not long continue after he left the country. His success as a diplomatist who carried into all his negotiations a spirit of conciliation and forbearance, was at this time so appreciated, that, in a season of trouble and anxiety, he was summoned to Madrid, and placed at the head of the foreign affairs of the government. But, notwithstanding the great advancement such a summons implied, he left the United States with regrets, openly expressed, and with no anticipations of permanent favor in his high place, or of permanent benefit to his Queen or her people. His misgivings were soon sadly realized. The factions that divided his country became more and more exasperated. Tumults followed. The administration of which he was a member was broken up by violence; and although his well-known fidelity and honor, no less than well-known toleration, caused a marked distinction to be made between him and some of the ministers with whom he was associated, he felt at once that he was proscribed and doomed. At first he found hospitality under the flag of one of the foreign ambassadors; but it was soon certain that neither Madrid nor Spain could afford him the shelter his honor demanded. He therefore escaped to France, and passed a period of no common anxiety at Paris and in its neighborhood.

When calmer times came, the injustice that had been done to him was felt by all. He was therefore recalled to Madrid, and received, with other distinctions, that of a place in the Senate, whose duties he fulfilled during the few remaining years of his life with assiduity and dignity. But even in youth ambition had never been a prominent trait in his character, and now in old age he felt more than most men the unfitness of office and power. He never again sought public place, but lived retired and much respected, either at Madrid during the sessions of the Cortes, or at his villa on the shore of the Atlantic, where he died.

Señor Calderon was a person of much elegant culture, and was familiar in many languages in different departments of literature, some of which are rarely sought or valued by his countrymen. The American Academy may be thought bound to take the more careful charge of his memory, since he lived so long among us, and since his only published works, except those connected with his duties as a statesman, were, we believe, two that appeared in the United States. One of these is a graceful translation into Spanish octave verse of Wieland's Oberon, which appeared at New York in 1841, in a duodecimo volume of 318 pages, of which it may be not unsuitable to add, that a copy, materially corrected and improved by his own hand, is preserved by one of his friends in this city. The other is a translation into Spanish of Müller's Universal History, in four large octavo volumes, published at Boston in 1843, — a labor which, we believe, he undertook to gratify friends in Mexico and Cuba, who desired to read in their own language a book which he had taught them to believe was so much to be valued for the condensed instruction it affords.

The Foreign Honorary Members deceased during the past year are BIOT and BARLOW of the first Class, and SIR FRANCIS PALGRAVE of the third.

SIR FRANCIS PALGRAVE died on the 6th of July, 1861, aged seventy-two years. He was one of those men who not only do honor to their calling, but who elevate the calling itself. The strenuous application, endless patience, and intense interest in the past, which make the province of the antiquarian so respectable, are not unnaturally associated with a microscopic and narrow vision. The discoverer, adding his own zeal and toil to the intrinsic worth of his discovery, is not in the best position fairly to compare it with things before known, and to set it in its true place. A positive benefactor to his fellow-men, he suffers in their estimation by the morbid or doting fondness with which he cherishes his benefactions. Antiquarian inquiry is often pursued as a relief from active cares, or as a refuge from the burden of unemployed ease. Idle men overvalue the light work which they really do, and busy men overvalue the by-occupation which proves their capacity to do more than one thing. But the highest kind of antiquarian research, that which follows the legal and political vestiges of the past, and seeks to unbury the cradle of a nation's institutions, is no secondary business. It tasks the energies of the best-trained mind.

This was the field in which Sir Francis Palgrave labored with marked success ; and his services have been largely used and gratefully acknowledged by writers whom it is a distinction to have pleased and aided. Though his studies often led him to explore special questions, and kept him more closely to English antiquity, his researches were not without a wider scope. One thread runs through most of them. To his mind, the ground-fact in mediæval and modern history is the perpetuation of the Roman element. The fourth empire he finds in existence still, and in possession of the area of civilization. This thought, which connects ancient, mediæval, and modern history together, though not absolutely new, and though held and enforced of late in greater or less extent by other eminent inquirers, was with him an independent and unborrowed one. Not content with linking the destiny of Continental Europe to the influence of the Eternal City, he seeks to bridge over the channel which insulates his native island, and to draw Britain also within the same great circle. In following out, sometimes it may be with excessive emphasis, this comprehensive and fruitful idea, he was able to turn to account the vast reading which had domesticated him in the Middle Ages. His familiarity with the history of art, particularly of architecture, appears in his contributions to the two leading English periodicals, in which he shakes off the dust of the Record Office, and sometimes rises to a strain of moral eloquence. Travellers in Europe have been indebted to him, often perhaps without knowing it, as the learned and able compiler of the "Handbook of North Italy."

Having published, some thirty years ago, a small volume on the History of England under the Anglo-Saxon Period, and an elaborate work on the Rise and Progress of the English Commonwealth, he was engaged in his last years on a "History of Normandy and England." Of this work he lived to complete three volumes, to publish two, and to make progress in at least a fourth. The double aspect of his subject would enable him to develop and enforce his leading ideas on early French and early English history. The published volumes deal only with the Continental side. The English portion, for which his wide and deep studies had liberally furnished him, will, it is to be hoped, soon be brought out. The work, so far as it has appeared, abounds in the fruits of learning, and bears perpetual witness to the Christian zeal and moral thoughtfulness of its author. That it has not won for him the highest honors of an historian, but has left his reputation to rest mainly, as before, on his great antiquarian labors, is owing less to a want of unity of thought (although the plan of the history has been in some respects excepted to) than of unity and proportion in the execution. He has too readily yielded to the temptation to digress and moralize; his imagination is not sufficiently curbed by severe taste; and his style is occasionally eccentric, even to the verge of the grotesque. His plea that a history is not strictly a work of art is not a full absolution for these peculiarities. But even in the part already published, as well as in many of Sir Francis's earlier essays, there is abundant life; and the reader meets with striking thoughts, sometimes expressed with great felicity and point.

In fine, if not a great historian, Sir Francis Palgrave, as a great historical antiquary, has contributed invaluable materials to history, and he has left behind him a most honorable example of fifty years of accomplished, disinterested, and devoted study.

PROFESSOR PETER BARLOW was born in Norwich, in 1776, and educated in that city. His strength of character and mathematical genius displayed themselves at an early age. In 1806 he was appointed one of the mathematical professors at the Royal Military Academy at Woolwich, which office he held forty-one years. He was the author of numerous works, among which are his well-known treatises on the "Theory of Numbers," "The Strength of Materials," and his "Essay on Magnetism." He was the author of most of the articles on subjects of practical mechanics and the useful arts in the Encyclopædia Metropolitana. These papers have been collected and published in a separate volume. To him also we are indebted for the discovery of the cause of the weakness of hollow cylinders when exposed to an internal pressure, as in the hydrostatic press. His discovery of the means of correcting the local attraction on the compasses of ships brought him into great notoriety; he received the Copley medal, and was elected on the Council of the Royal Society. The Board of Longitude conferred upon him the rewards provided for useful nautical discoveries, and he was likewise placed by government upon several royal commissions connected with public works, while many foreign governments and societies bestowed their honors upon him. When at length, in 1847, he retired from the Royal Military Academy, the government awarded to him the full income of the professorship for the remainder of his life, in consideration of his eminent services.

In his person and manners, Mr. Barlow presented a fine specimen of the thorough, straightforward Englishman. His simple and upright character and his kind and cheerful disposition endeared him to all who were honored with his acquaintance.

JEAN BAPTISTE BIOT was born in Paris, on the 21st of April, 1774. He died on the 3d of February, 1862, at the advanced age of nearly eighty-eight years.

Having studied in the College of Louis-le-Grand, Biot joined the army. After he left the Artillery service, which he had first chosen, Biot entered the Polytechnic School, and then became Professor in the Central School at Beauvois. He was Professor of Physics in the College of France from the year 1800, and Professor of Astronomy in the Faculty of Sciences in Paris from 1809. He had been a member of the Institute since 1803, and of the Bureau of Longitudes since 1806.

Biot enjoyed the honor, which had fallen to no one besides, of belonging to three of the classes of the Institute, viz. the French Academy, the Academy of Inscriptions and Belles Lettres, and the Academy of Sciences. In the Academy of Sciences, of which he was chosen a member at the age of twenty-seven, Biot was assigned to the section of Geometry. For, although he is most familiarly known to the present generation as a physicist, he began his career as a mathematician and astronomer. No one in France was so much at home with the *Mécanique Céleste* of Laplace, all the computations in which he repeated, besides making annotations on the most difficult passages. The session of the French Academy of Sciences on the 18th of April, 1853, was rendered memorable by the congratulations extended to Biot upon the completion, only a few days before, of his Academical Jubilee. On this occasion Thenard observed that it was a sufficiently comprehensive tribute to Biot to say simply, "that it was fortunate for science that Biot had been a member of the Academy of Sciences for 50 years."

Although the senior member of the Academy, he remained in the full exercise of his great intellectual powers to the last. During his illness, which was not alarming at first, and which continued only eight days before it suddenly terminated in death, he conversed with his associates, and responded to the profound interest taken in his restoration. When the fatal consummation of his malady, which at last manifested itself as congestion of the lungs, was announced to the Academy by Duhamel, the minds of all were too much paralyzed even for reminiscences or eulogies, much more for the election which had brought them together, and an adjournment was immediately voted.

The Institute of France made a large part of the life of Biot. He came at length to look upon himself almost as the personification of it, and spoke of its concerns with an authority conceded to no one else. He was keenly alive to its privileges and its honor. In 1837, and again in 1842, he expressed his misgivings as to the influence which the publicity of its meetings and the weekly publication of the *Comptes Rendus* would exert upon science. And again in 1858, in his *Mélanges Scientifiques et Littéraires*, he expressed the conviction that the Academy, by wishing to be known to the multitude, had lost in independence what it had gained in vulgarity. "Dieu veuille que son avenir scientifique ne se trouvé pas profondement affecté par cet échange!"

Under the conviction, almost universal, that Biot was the most illustrious embodiment of the Academy and of science, the wish has been expressed that his place in the section of Geometry should remain vacant for one year, as happened after the death of Cuvier and Poisson. It was understood that Biot was ready to die as soon as the geometer Bour had ripened into a fit candidate to succeed him. On the death of Poinsot, Biot inquired of the mathematician Bertrand, what young man promised the greatest future in the career of geometrical analysis. Bertrand replied, "Bour. But he will not be of full stature for three or four years." "Then," says Biot, "I need not hurry myself." Soon after, Biot asked the same question, and received the same answer again. In a short time Bour received a package containing a rare copy of the works of Lagrange, which had never been collected, but which were scattered in Memoirs of different Academies, with this inscription: "Presented by Lagrange to Condorcet, by Condorcet to Lacroix, by Lacroix to Biot, by Biot to Bour, by Bour to ——."

Biot's long and laborious life furnishes one of the most brilliant illustrations of science. He had no higher earthly ambition than to discover new laws of nature. He was not ambitious, as Arago, to add political distinction to his scientific honors. In 1804 he prevailed upon the Institute not to vote for Bonaparte's elevation to the throne. But his conscience as a man of science revolted at the thought of wasting any time in the distractions and jealousies inseparable from political preferment. As the Abbé Moigno adds: "L'aureole de la science lui paraissait infiniment préférable à l'aureole de la politique."

The most elaborate works of Biot are, — 1. The *Traité de Géométrie Analytique*, 1802; 2. The *Physique Expérimentale*, in 4 volumes, 1816; 3. The *Précis de Physique*, in 2 volumes, 1817; 4. The *Traité d'Astronomie*, in 3 volumes, 1805; and afterwards in 1850 in 6 volumes, with an Atlas. The latter labor he finished at the age of seventy-six, without the aid of younger collaborators. Besides these most important treatises, he published in 1803, *Essai sur l'Histoire des Sciences pendant la Révolution Française; Relation d'un Voyage fait dans le Département de l'Orne pour constater la Réalité d'un Météore observé à l'Aigle; Recherches sur les Refractions Ordinaire, &c.*, 1810; *Tables barométriques portatives*, 1811; *Recherches Expérimentale et Mathématique sur les Mouvements des Molécules de la Lumière autour de leur Centre de Gravité*, 1814; *Recherches sur Plusieurs Points de l'Astronomie Égyptienne*, 1823; *Recherches sur l'Ancienne Astronomie Chinoise*, 1840. In connection with Arago, he published *Recueil d'Observations Géodésiques, &c., &c., executés par Ordre du Bureau des Longitudes de France, en Espagne et en Ecosse pour déterminer la Variation de la Pesanteur*, 1821; *Instructions pratiques sur l'Observation et la Mesure des Propriétés Optiques appelées Rotations*, 1845. He also published, with Lefert, in 1856, *Commercium epistolicum J. Collins et aliorum de Analysi Promota, &c.* To these must be added the *Mélanges Scientifiques et Littéraires*, in 3 volumes, 1858.

Space would fail even to enumerate his many scattered memoirs and notices. A conception may be formed of the enormous literary and scientific labor of his life, by considering that he contributed twenty-three memoirs to the Institute, and one to the *Mémoires des Savans*

Etrangères; that he published eight papers in the *Mémoires d'Arcueil*, twenty-three in the *Bulletin de la Société Philomatique*, fifteen in the *Annales de Chimie et de Physique*, forty in the *Comptes Rendus*, four in the *Journal des Mines*, three in the *Journal Polytéchnique*, and one each in the *Connaissance des Tems* and the *Journal de Physique*. He became editor in the mathematical department of the *Journal des Savans* in 1816, and has himself contributed largely to its pages, besides furnishing many notices in the *Bibliothèque Universelle*. These numerous publications only presented the fruits of great historical or experimental research, often in new and difficult fields of investigation, ranging through every branch of Physics, Chemistry, Astronomy, and Mathematics. He welcomed, in their infancy, the new-born sciences of Electro-Magnetism and Radiant Heat, and nourished them from his own affluent resources. At one time we see him listening to the different sounds of the same organ-pipe, when filled with various gases; at another time, he is lost in the mazes of astronomical chronology, or delving among the remains of ancient Chinese science. Now he is solving a problem in the attraction of spheroids, or the tautochronous curves, or the mathematical laws of heat and sound, and then, again, he is experimenting on the gases in the bladders of fishes, or on the elastic force of vapors, or the eye-pieces of telescopes. He handles with the same delicate touch the hypothetical atoms of chemistry and the second differentials of the calculus. No speciality in the physics of our own globe eluded his vigilant eye. The figure of the planet; the variations of terrestrial gravity and terrestrial magnetism; the multitudinous phenomena of the atmosphere, its constitution, its limits, its refractions, ordinary and extraordinary; the aurora borealis; meteoric stones; — all these subjects, however incomplete they yet remain, received an additional touch at his hands. But the great thought in all his studies was given to theoretical and experimental optics. The polarization and double refraction of light, and its applications to crystallography, its use as a substitute for chemical analysis, and the production of artificial crystallization by heat, pressure, or induration, were favorite topics of study, on which he experimented largely and wrote voluminously.

The most original step which Biot took in science was when he discovered the laws of rotatory polarization, and their application to the analysis of various solutions. His labors upon this subject extend over forty years of his life, and culminated in the brilliant discovery by

Faraday of the rotatory influence imparted to glass when exposed to the constraint of electro-magnetic induction.

Biot was the ablest champion of the corpuscular theory of light. By his celebrated hypothesis of movable polarization, which fills the entire volume of the Academy of Science for 1812, he succeeded in giving a formal explanation to the phenomena of depolarization, and of delaying for a time the triumph of the theory of undulations. In this attempt he had the sympathy of Laplace and other prominent mathematicians, who found the speculations of Biot more congenial to their habits of thought than the theory of Fresnel. Arago, however, soon entered the lists against Biot, and the discussion was carried on with such bitterness that these distinguished physicists, once intimately associated, were wholly estranged from each other. It may be inferred, however, from the reflections of Biot in his *Mélanges Scientifiques et Littéraires*, that, if he were not altogether converted to the undulatory theory of light, he could not but acknowledge the wonderful felicity with which Fresnel had adapted it to the various classes of phenomena with which experimental research had enriched the domains of optics within the present century.

Few salient points present themselves in the even tenor of a life dedicated to the unostentatious pursuit of science, as that of Biot was *par excellence*. In 1804, Biot and Gay-Lussac proposed to ascend in a balloon to the higher region of the air, to measure the force of terrestrial magnetism at great elevations, and to experiment upon the chemical and electrical properties of the atmosphere at different heights. By the instigation of Berthollet and Laplace, aided by the influence of the great chemist Chaptal, who was then Minister of the Interior, the government gave its support to the projected enterprise; and one of the celebrated balloons of Conté, which had survived Napoleon's campaign in Egypt, was intrusted to the scientific explorers, and the artist who constructed it was placed at their disposal to prepare it for its peaceful ascent. Supplied with a full complement of barometers, thermometers, hygrometers, electrometer, and instruments for measuring the magnetic force and dip, as well as frogs, insects, and birds for galvanic experiments, the scientific voyagers embarked in their aerial car on the 23d of August, 1804. They began their experiments at the altitude of 6,500 feet, and continued them up to the altitude of 13,000 feet, and with a success commensurate with their wishes. The last part of the excursion, and especially the landing which they made, was so difficult, and even dangerous, that, according to the statement of Sir John Leslie, " Biot, though a man of activity, and not deficient in personal courage, was so much overpowered by the alarms of their descent, as to lose for the time the entire possession of himself."

At the commencement of 1806, Biot, accompanied by Arago, who was then only twenty years old, left Paris to resume the measurement of a degree of the meridian in Spain, which had been interrupted by the death of Mechain. Arago, in his autobiography, has given a detailed account of the labors and dangers of this scientific enterprise, all of which, however, were successfully surmounted. To connect by triangulation the station at Deserto de las Palmas with Campvey, in the island of Iviça, required intense signals, capable of being seen nearly one hundred miles. Long and anxiously they awaited a favorable opportunity, encamped on inhospitable mountains, with no society but the winds and the eagles.

In the summer of 1817, Biot was despatched to the Orkney and the Shetland Islands, to correct some disputed astronomical observations; and thus at both extremes he was instrumental in fixing that ideal meridian line which the finger of geometry has drawn from Unst, in the North Sea, to Formentera, in the Mediterranean, — the sure foundation of the French metre and the decimal system which the Revolution introduced into science. Biot returned to Paris by the way of the Greenwich Observatory, and there, in presence of Arago and Humboldt, he experimented on the vibrations of the pendulum, Humboldt being willing, as Biot expressed it, to lay aside for the moment the multitude of his other talents, for the sake of being only a good observer.

During his two months' residence in the Shetland Islands, Biot lost no opportunity of observing the aurora, and studying for himself the problematic phenomena associated with it. And wherever he travelled, he was not unmindful of the climate, or the manners and customs of the people nurtured under it. His good sense and calm philosophy are often forcibly impressed on his writings. The Italians pity the French, because doomed to live under a cold sky; the French are contented, but pity the English; the English are contented, but pity the Scotch; the Scotch are contented, but pity the Shetlanders; the Shetlanders are contented, but they, too, pity the Icelanders, for the inhospitable climate of their Northern home. " La verité est que dans tous les climats du monde, l'homme peut vivre avec une somme de bon heur à peu près égale, s'il porte avec lui les vertus sociales et les resources du commerce et de la civilization."

Biot was the last survivor of a brilliant epoch in science, made illustrious by the names of Laplace, Gay-Lussac, Cuvier, De Candolle, and Humboldt, and inspired to extraordinary activity by the spirit of the early French Revolution. Biot outlived, by ten years, his own son, Edward Constant Biot, who shared his father's love of knowledge, rose to be a member of the Academy of Inscriptions and Belles-Lettres in 1847, was distinguished by his acquaintance with the Chinese language, and is well known as an explorer among the archives of Chinese science.

When Biot and Arago were engaged in Spain upon their geodetic survey, they had an interview with the Archbishop of Valencia, to seek his protection. Biot left the hall of reception without kissing the hand of the Franciscan. Before Arago could escape, he was recalled, and obliged to submit, though he confesses he had in mind chiefly the success of the survey, and the beautiful stone in the ring of the Archbishop, which he coveted for optical experiments. Late in life Biot returned to the bosom of the mother Church, and received the rite of confirmation at the hands of his own grandson.

Biot was able to accomplish a task, enormous even when measured by his long life, in consequence of his simple and regular habits of study and recreation, and the singleness of heart with which he dedicated himself to the study of physical laws. He wrote during the forenoon, took a walk at noon, read in the afternoon, and passed the evening in the family circle.

The *Journal des Debats* of February 6 has the following notice: "To-day, at noon, the obsequies of Biot were attended by a crowd of the colleagues and friends of the deceased. The entire Faculty of Sciences, and many members of the Institute, assisted at the sad ceremony. The Normal and Polytechnic Schools were represented by large deputations. The funeral *cortége* was directed from the Church of St. Etienne-du-Mont to the cemetery Montparnasse, where many eulogies were pronounced. Viennet spoke in the name of the French Academy, Bertrand for the Academy of Sciences, M. de Rougé for the Academy of Inscriptions and Belles-Lettres, Serret for the College of France, and Puiseux for the Faculty of Sciences.

A distinguished French *litterateur* writes to one of our own academicians: "Biot's death is a sad loss to our scientific world. He was the only member of the Institute who belonged to the consular period. His successor as *Doyen de Reception*, the astronomer Matthieu, dates from 1817. A whole age, a whole scientific world, has been borne with Biot to the tomb. Even the venerable Académie Française is tottering to the grave. That old institution is dying by mere *impossibilité de vivre.* The other classes of the Institute have more sap, and can last much longer."

The accessions to the ranks of the Academy since the last report consist of 11 Resident and 4 Associate Fellows, and of 4 Foreign Honorary Members. Four of the newly chosen Resident Fellows are assigned to the first Class, two to the second Class, and five to the third Class.

Two of the Associates are of the first, one of the second, and one of the third Class.

Of the Foreign Honorary Members recently chosen, Sir William Fairbairn fills the vacancy left by the death of Robert Stephenson in Class I. Section 4. Captain Duperrey, in Class II. Section 1, supplies the place of the late Professor Tiedemann of the third Section. Professor Bekker takes the place of Professor Thiersch in Class III. Section 2; and Professor Trendelenburg, in the first Section, that of Bunsen.

The following schedule indicates the numbers of the actual members of the Academy, and their distribution in the Classes and Sections: —

Class I.		Class II.		Class III.		
		Resident Fellows.				
Sect. 1	12	Sect. 1	10	Sect. 1	12	
“ 2	7	“ 2	8	“ 2	18	
“ 3	16	“ 3	14	“ 3	13	
“ 4	14	“ 4	16	“ 4	15	
	49		48		58	155
		Associate Fellows.				
Sect. 1	9	Sect. 1	10	Sect. 1	3	
“ 2	10	“ 2	7	“ 2	8	
“ 3	11	“ 3	9	“ 3	2	
“ 4	7	“ 4	5	“ 4	3	
	37		31		16	84

Foreign Honorary Members.

Sect. 1	8	Sect. 1	8	Sect. 1	5	
" 2	6	" 2	7	" 2	8	
" 3	7	" 3	8	" 3	3	
" 4	4	" 4	5	" 4	2	
	25		28		18	71
						310

The annual report of the Treasurer, attested by the Auditors, was read, accepted, and ordered to be entered in full upon the records.

The annual report of the Library Committee, and that of the Committee on Publications, were read, accepted, and ordered to be placed on file.

On motion of the Treasurer, appropriations for the various expenditures of the Academy, the same as for the preceding year, were voted.

On motion of the Vice-President, a committee was appointed to examine and report on the administration of the Rumford fund; and, on motion of Dr. M. Wyman, the same committee was instructed to consider the expediency of collecting and reprinting Count Rumford's published writings, at the expense of the Academy.

The President, Professors Parsons and Gray, and Messrs. Emerson and J. A. Lowell, were chosen to serve on this committee.

Professor Hubert A. Newton, of Yale College, was elected an Associate Fellow, in the Mathematical Section.

The annual election was held, and the following officers were chosen for the ensuing year: —

JACOB BIGELOW, *President.*
DANIEL TREADWELL, *Vice-President.*
ASA GRAY, *Corresponding Secretary.*
SAMUEL L. ABBOT, *Recording Secretary.*
JOSIAH P. COOKE, *Librarian.*
EDWARD WIGGLESWORTH, *Treasurer.*

Council.

J. I. Bowditch,
Joseph Lovering, of Class I.
E. N. Horsford,

Louis Agassiz,
Jeffries Wyman, of Class II.
J. B. S. Jackson,

James Walker,
Henry W. Torrey, of Class III.
Robert C. Winthrop,

The several Standing Committees, upon the nomination of the President, were appointed as follows: —

Rumford Committee.

Eben N. Horsford, Joseph Lovering,
Daniel Treadwell, Morrill Wyman,
Joseph Winlock.

Committee of Publication.

Joseph Lovering, Jeffries Wyman,
Charles Beck.

Committee on the Library.

Augustus A. Gould, William B. Rogers,
George P. Bond.

Committee to Audit the Treasurer's Accounts.

Thomas T. Bouvé, Charles E. Ware.

Committee of Finance.

Jacob Bigelow,
Edward Wigglesworth, *ex officio, by statute.*
J. Ingersoll Bowditch, *by appointment.*

On motion of the Vice-President, the meeting was adjourned to Tuesday, the first day of June next; then to consider and act upon the question of awarding the Rumford Premium.

Five hundred and tenth meeting.

June 1, 1862. — ADJOURNED ANNUAL MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters relative to the exchanges of the Academy.

Professor Child presented a paper, entitled, "Observations on the Language of Chaucer."

On motion of Professor Horsford, seconded by Professor Treadwell, it was voted: —

> "That the Rumford Premium be awarded to John B. Ericsson, for his improvements in the management of heat, particularly as shown in his Caloric Engine of 1858."

On motion of Dr. Morrill Wyman, the following resolution was passed, viz.: —

> "That the sum of six hundred dollars be paid by the Academy, from the Rumford Fund, to Philander Shaw, of the city of Boston, to be expended by him in experiments or investigations relative to air-engines; said experiments and investigations being, in the opinion of the Academy, such as will facilitate and encourage the making of a discovery or improvement which may merit the Rumford Premium or Medals."

Five hundred and eleventh meeting.

August 12, 1862. — STATUTE MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters received relating to the exchanges of the Academy. Also a letter from the Secretary of the American Oriental Society, conveying the thanks of that Society to the American Academy for the use of its hall.